IN THE SPECIFICATION:

Please replace paragraph number **[0024]** with the following rewritten paragraph:

[0024] FIG. 6 is a schematic representation of an alternative embodiment similar to the embodiment shown in ~~FIG. 5(A) – (C)~~ FIGS. 5(A)-(C), but where the inhalation and exhalation portions are adjustably expandable;

Please replace paragraph number **[0051]** with the following rewritten paragraph:

[0051] In the present invention, the software program compensates, or accounts, for the functional residual capacity of the patient's lungs and the alveolar deadspace which exists. The correction is equal to the FRC times the change in end-tidal concentration or

$$V_{CO_2} = V_{CO_2} + FRC \times \Delta etCO_2/Pbar,$$

where "Pbar" is barometric pressure. FRC is estimated as a function of body weight as estimated by the deadspace volume using the equation

$$FRC = \text{FRC-factor} \times \text{airway deadspace} + \text{an offset value},$$

where the FRC-factor is a value experimentally determined or is based on published data known in the art and the offset value is a fixed constant which is added to compensate for breathing masks or other equipment components which may add deadspace to the circuit and thereby unacceptably skew the relationship between FRC and deadspace. The airway deadspace is the volume at which CO_2 crosses a selected threshold e.g., ~~$(0.5etCO_2)$~~ $(0.5etCO_2)$. Dry gas is assumed in all equations.

Please replace paragraph number **[0052]** with the following rewritten paragraph:

[0052] Compensation is also made for parallel deadspace (See FIG. 10). Parallel ~~dead-~~ deadspace CO_2 concentration is calculated as a low-pass filtered version of the mixed inspired CO_2 plus the airway deadspace times the previous end-tidal CO_2 concentration. The average CO_{2PDS} is $etCO_2$ times airway deadspace plus inspired CO_2 volume divided by the tidal volume.

Breath-by-breath calculation of parallel deadspace, or unperfused space, concentration is therefore:

$$PDS_{CO_2}(n) = \{[FRC/(FRC + V_t)] \times PDS_{CO_2}(n-1)\} + (\{[ViCO_2 + (\text{deadspace} \times \sout{etCO_2(n-1))]/V_t\}} \underline{etCO_2(n-1)]/V_t\}} \times [V_t/(V_t + FRC)]),$$

where V_t is the tidal volume (the volume of the breath), PDS is parallel deadspace (i.e., space in the lung that is ventilated but not perfused by blood flow), $etCO_2$ is the concentration of CO_2 at the end of the exhaled breath, or "end-tidal," "deadspace" is the volume in the trachea and bronchi through which air must pass to get to the alveoli but in which no gas exchange occurs (also defined as "serial deadspace," See FIG. 10) and (n-1) indicates the previous breath.